

Remarks

The specification was rejected for failing to include an abstract and section headings. An appropriate abstract and headings have been added by way of the present amendment. The Office also objected to the incorporation of material by reference to a foreign application. WO-A-9535628, referenced in the application as filed, corresponds to US Patent No. 6,285,716. The application has been amended to incorporate the '716 patent by reference. The '716 patent is commonly owned by the assignee of the present application. A copy of the '716 patent is not being submitted because the '716 patent is already part of the record. A review of the '716 patent will demonstrate that it discloses the same information as WO-A-9535628. Applicants submit, pursuant to M.P.E.P § 608.01(p), that no amendment or further or separate declaration is required to overcome the Office's objection.

Claims 1-11 were presented for examination. Claims 1-5 and 7-11 have been rejected under 35 U.S.C. § 102 (e) as being anticipated by Knee et al. (US 6,285,716). Claim 6 has been rejected under 35 U.S.C. § 103 (a) as being unpatentable over Knee et al. in view of Chan et al (US 5,812,197).

Claim 7 has been rejected under 35 U.S.C. § 112 as being indefinite and Claims 1, 8 and 10 have been objected to. Amendments have been made to these claims and it is believed that these amendments address in self-evident fashion the Examiner's rejections.

Addressing first the rejections under § 102 and § 103, Knee et al. is primarily concerned to address the inefficiencies and loss of performance that arise where coder/decoder pairs operate independently in the same signal chain. The solution is disclosed of extending an information bus from the decoder in the upstream coder/decoder pair to the encoder in the downstream pair. This information bus makes the coding decisions used in the upstream coding process available for use in the downstream coding process. The video signal which passes from the upstream to the downstream coder/decoder pair has of course already been coded with those coding decisions in the upstream coder. The application of those same coding decisions in the downstream coder therefore reduces duplication and inefficiency as well as reducing the loss of performance arising from repeated coding and decoding operations.

It is suggested in Knee et al., that the information bus may optionally also extend from a preprocessor (such as a noise reducer) to a coder. Thus Figure 1 shows a preprocessor 10 passing both a video signal P and an information bus IB to a compression coder 12. The purpose is to make available to the coder, useful information gathered in the noise reduction process. It will be understood that this noise reducer (or other preprocessor) is not

compression coding the video signal. The information bus - at this point in the signal chain - is not carrying compression coding decisions. It would not be possible, for example, to take the skeletal information bus as it exists between preprocessor 10 and compression coder 12 and drive a "dumb" coder. In this context, a "dumb" coder is (as is explained for example at Column 5 lines 8 -10 of Knee et al.) a downstream coder that simply obeys the coding decisions (presented via the information bus) that were taken in the upstream coder.

The present invention, in contrast, enables the upstream coder to be provided with coding decisions. A master or input video signal (which has not been encoded/decoded and so is free from the degradation inherent in any coder/decoder pair) can have the necessary coding decisions associated with it to drive a compression coding process.

An important application of this new functionality is to enable those responsible for the quality of master, uncompressed video signals to control also the quality of the coding decisions, which will be used in the compression coding of that master video signal. Since the present invention provides for a representation of the coding decisions to accompany the video signal, this control may be exercised even where the taking of the coding decisions and the compression coding of the master video signal are widely separated in space and in time.

In his reasoning for the § 102 rejection, the Examiner has taken the view that the preprocessor 10 of Knee et al. analyzes the input video and takes compression coding decisions. As has been explained, the information bus output of this pre-processor is merely information about the noise reduction or other preprocessing operation that might be useful in the coding process. The information bus passing to the compression coder 12 does not carry coding decisions.

The Examiner has referred for support to a statement in the present application that the information bus can (as a matter of design convenience) be used within the coder 12 as an internal path for coding decisions. It will be evident that these are coding decisions taken by the coder 12, within the coder 12. This suggested design convenience does not disclose the provision of coding decisions externally from the preprocessor 10 to the coder 12.

In an endeavor to distinguish the presently claimed invention still more clearly from the art, it has by way of amendment been clarified that that the step of analyzing the input video signal and taking compression coding decisions, takes place in a compression coding step. Evidently, the preprocessor of Knee et al. does not perform a compression coding step.

The claims of this application further require a representation of the coding decisions to be passed along a video pathway with the input video signal. The Examiner has referred to the signal CP output by coder 12 and interpreted it as "processed coding decision CP along

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the video pathway.” The output of coder 12 is a compressed bitstream. There is at this stage no information bus. At subsequent points in the signal chain there exist both an information bus and a video signal. However that video signal is not the “master” input video signal; it is a video signal that has been subject to coding and decoding processes.

Thus, in the disclosure of Knee et al., the information bus carries a “historical” representation of coding decisions taking in an upstream coding process to reduce duplication and loss of performance in a downstream coding process.

In the present invention, the coding decisions drive the upstream coding process. Against the teaching of Knee et al. there is no avoidance of duplication since the steps of analyzing the input video signal and taking coding decisions are additional steps. The intention is not to avoid loss of performance from cascaded upstream and downstream coder/decoder pairs, but to enable responsibility for taking coding decisions to lie with those responsible for providing the master input video signal.

The applicants therefore disagree with the Examiner’s contention that Knee et al. discloses the presently claimed invention and consider that Claims 1 and 9 are novel and patentable over the cited prior art. The remaining claims are submitted as patentable at least for the reason that they depend from a patentable claim. The § 103 rejection is believed on these grounds to be moot.

Favorable re-examination is respectfully requested.

The applicants request that the Examiner telephone the undersigned in the event that a telephone conference would facilitate the examination of the application.

Respectfully submitted,



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